Beyond Recycling

An Integrated Waste Management Framework for Local Government

Part A: Developing an integrated waste management strategy and empowering the community

Institute for Sustainable Futures

Local Government Association of NSW

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Part A

Developing an integrated waste management strategy and empowering the community to make a difference

INTRODUCTION

Although the Australian community is concerned about the environment and committed to kerbside recycling, Australia creates more waste per person than almost any other country. Substantial increases in the cost of waste disposal over the past decade have not curbed total waste generation, and the net cost of kerbside recycling to local government continues to be substantial. Consistent with the Local Government Act 1993, significant efforts have been made in NSW and other States to manage waste in line with the principles of Ecologically Sustainable Development. However until recently these efforts have focused largely on managing the problem once waste has already been generated, such as increasing the efficiency of existing collection systems, new treatment technologies and turning waste into energy. There are significant opportunities for local government to explore other options in line with international developments in Extended Producer Responsibility. Such options typically operate higher up the waste hierarchy, and are more cost-effective than current practice, in addition to achieving greater environmental benefits.

Current global and Australian production and consumption patterns are generally unsustainable. We produce commodities at a significantly faster rate than the environment or society can absorb the end-of-life products.[1] There is growing awareness that the problem is not just one of waste and limited landfill capacity but that it extends up the production chain to the impact of extracting and processing virgin materials (non-renewable resources). A significant amount of energy, water and transport is also required to produce these goods, which currently end their life as waste, further adding to the environmental cost of producing consumer goods (see Figure 1). Consequently, there is an emerging awareness that a 'life cycle' approach to waste management and recycling is required. Life cycle analysis enables costs and benefits of waste and resource management options to be determined over the whole life of a consumer product. Taking a 'triple bottom line' approach to decision-making ensures environmental, social and broader economic impacts of waste and recycling are considered in addition to operational and financial costs.

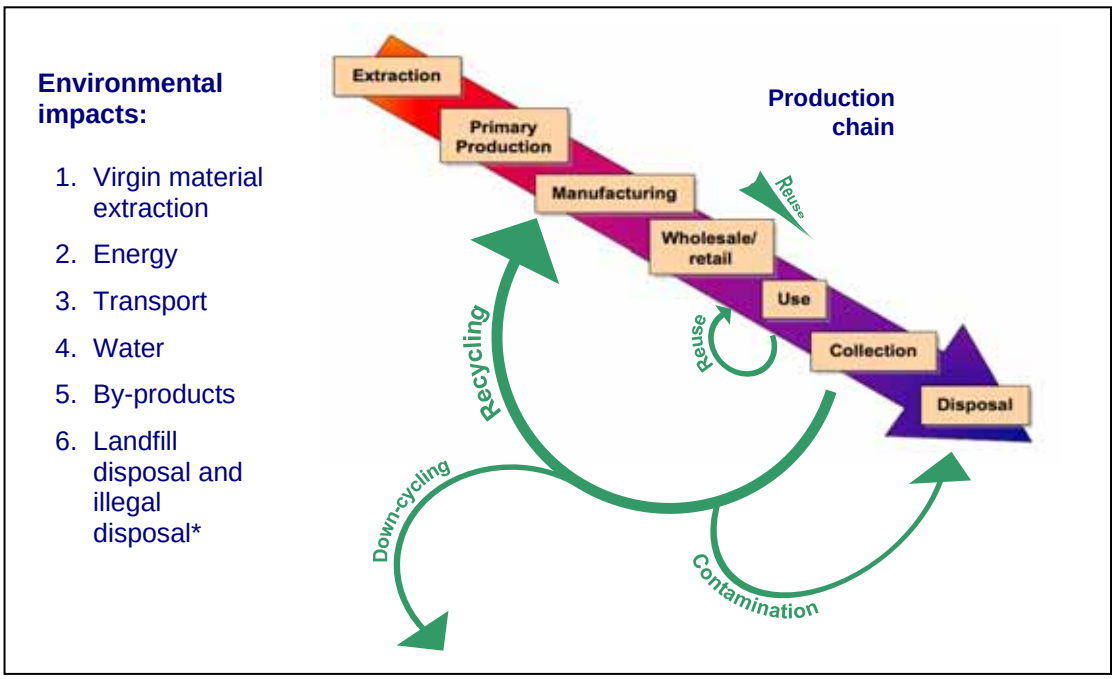

Figure 1: Environmental impacts of consumer products throughout an 'open-looped' product chain and waste minimisation options for 'closing the loop'.

[1] OECD (2000a)

According to the OECD,[2] Australia has the second highest per capita rate of waste generation in the world. Some studies suggest that the superior recycling rates[1] of many European countries compared to Australia, can be attributed to their use of regulated recycling and packaging measures and economic instruments.

These measures and directives exist within a framework of Extended Producer Responsibility (EPR), defined by the OECD as "an environmental policy approach in which a producer's responsibility, physical and/or financial, for a product is extended to the post-consumer stage of a product's life cycle".[2] Whilst EPR initiatives (such as the 1994 *EC Directive on Packaging and Packaging Waste*) have been commonplace in European waste policy for some time, Australia is only now catching up to international best-practice developments.

Several initiatives in the last twelve months at the state and national level have been directed at minimising waste. Commonwealth and State Environment Ministers have recently approved several industry-led EPR initiatives to minimise waste (and hazardous substances) related to televisions, computers and tyres, and the NSW Minister for the Environment announced that products such as computers, televisions, nickel-cadmium batteries, used tyres and plastic bags were a priority for an EPR strategy. The NSW EPR Priority Statement is based on the OECD definition of EPR described above. Another initiative, the National Packaging Covenant (NPC), is a voluntary agreement between the packaging industry and some governments to reduce packaging waste. Three reviews of the NPC have been conducted in the last six months, all of which agreed that it has not been demonstrably effective in actually reducing packaging waste.

The momentum toward best practice integrated waste management strategies at various government levels, coupled with continued and growing community support for recycling and alternative waste management strategies like EPR, provide an excellent opening for local governments to reflect on, or reassess their current investment and contribution towards recycling and waste management in Australia.

Since the early 1990s, residential kerbside recycling has been a popular waste management practice for Australian local governments. NSW local governments were bound to waste management as assigned by the *NSW Local Government Act 1993.* However, the responsibility for recycling also fell on local government because of pressure from the wider community. A waste levy was introduced in the greater metropolitan region of NSW in 1990 and the resulting money funded a recycling rebate scheme as an incentive for local governments to provide separate collection services for recyclables[3]. At this early stage, the waste levy was set very low at $0.50 so it was cost-neutral from a local government perspective, however by 2003/4 this rose to $19.80[4]. After the used-paper market crashed in the early 1990s and again in 1997, and with the volatility of used glass and PET container markets in the mid to late 1990s, the gap began to widen between the cost of local government providing a kerbside recycling service and the revenue from the sale of the collected recyclable materials (known as 'the gap'). By 1997, the gap was reportedly at $36 million for the Greater Sydney Region alone.[5] While the yields and range of materials collected have been steadily increasing, this has come at the cost of increased local government expenditure, increased contamination rates and a highly volatile market for recyclable materials. This increased cost is effectively passed on to the ratepayer and currently equates to around $41/hh/annum[6].

Furthermore, strong community, industry and government pressure to maintain kerbside recycling has:

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[2] OECD (2000b)
[3] Woods (2003)
[4] NSW Government (2004)
[5] Nolan-ITU (1998)
[6] DEC (2003)

- resulted in a limited ability to extend the same level of resource management to other significant areas of the waste stream, such as the away-from-home sector (e.g. public places), green waste and large waste;
- relieved pressure on State and national Governments and industry to explore the use of other instruments such as take-back schemes and targeted economic incentives; and
- placed the burden for service delivery directly on local government, with very little responsibility by producers.

For some parts of the waste stream, such as beverage containers, half of all materials are consumed away from home and thus are not recovered through kerbside recycling. This means there is substantial potential for waste recovery in the away-from-home sector, in addition to those still ending up in landfill from the at-home sector. If this sector is not addressed, there is a risk of over-reliance on a sub-system (kerbside recycling) that results in a less than optimal system (minimisation and recovery of waste in total). In South Australia and other parts of the world like British Columbia in Canada, that have a deposit-refund system on beverage containers in place, a strong network of depots or drop-off-centres exists which allow a range of used materials and products to be collected, even those which are not part of the deposit-refund system. This has resulted in high recovery rates for both deposit bearing and some non-deposit bearing materials.[7] The review of Container Deposit Legislation (CDL) in NSW found that a deposit-refund system would be likely to enhance kerbside recycling in terms of improved financial performance rather than act as a hindrance.[8]

The trend in Australia toward waste management based on EPR principles clearly implies that the current physical and financial burden on local government to collect end-of-life waste products for recycling needs to be redistributed and placed more firmly with the producers of goods and materials that end their life as waste. For example, while the NPC states it is based on an ethic of shared responsibility in relation to management of packaging waste, it ultimately absolves industry of the responsibility to ensure the financial viability of kerbside recycling systems, leaving local government to continue subsidising the increasing cost of providing the service.[9]

The NPC also fails to uphold its objective of collaboration between all stakeholders in the packaging chain, in part perhaps because the majority of local governments, and NGO's and citizens, were excluded from negotiations and critical decision-making in its formation.

Ideally, an EPR strategy would be developed and coordinated at the national or State level to ensure consistency, maximise effectiveness and minimise administrative complexity. However, local government needs to take a strong position to support the implementation of such a strategy through informed advocacy, strengthening local government involvement in State and Commonwealth decision-making, providing physical infrastructure to support the implementation of EPR in practice and engaging the community. Under the principles of a genuine EPR system, producers would also provide financial and/or physical support for any such system.

[7] ISF (2001)
[8] ISF (2001)
[9] ISF (2004)

DEVELOPING AN INTEGRATED WASTE MANAGEMENT STRATEGY

Almost all NSW local governments provide residential kerbside recycling for paper and packaging waste and yields from this collection system have increased over the last decade. Despite this, total waste generation in NSW and Australia is on the increase. Fortunately, there is substantial potential for waste minimisation and resource recovery beyond kerbside recycling. Many local government waste and recycling contracts are coming up for renewal, which means now is an opportune time for local government to reflect on, or reassess its current investment and contribution towards recycling and waste management.

This section presents a decision-making process for local government waste managers to identify which waste management options are most cost-effective in their specific situation and which priorities to address at what time. It also addresses opportunities for local government to contribute towards more sustainable consumption and waste management, such as informed advocacy and stakeholder and community engagement. This integrated strategy would allow both the operational and strategic aspects of waste-related service provision to be addressed. Figure 2 depicts local government's strategic areas of influence.

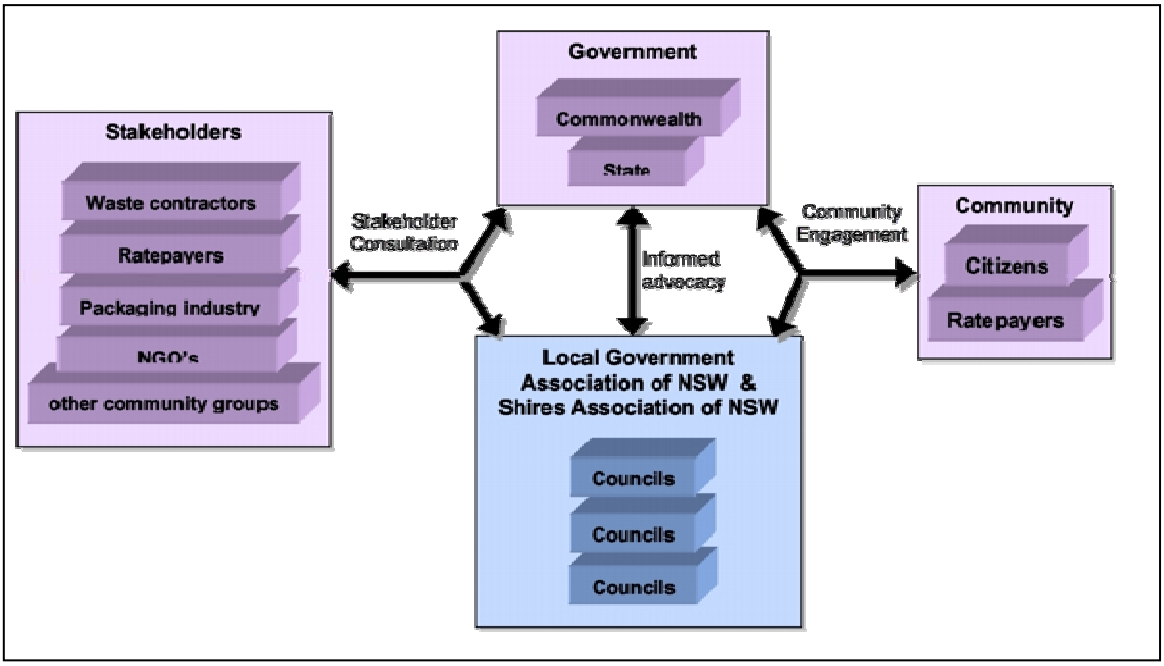


Figure 2: Local government's strategic areas of influence beyond operational aspects of waste management.

Local governments can contribute substantially towards sustainable waste and resource management in NSW and Australia by:

1. Developing an integrated decision-making process for managing the (informed) community's waste of all types and in all sectors
2. Promoting the implementation of Extended Producer Responsibility through:
    - informed advocacy to State and Commonwealth Governments
    - strengthening local government involvement in State and Commonwealth decision-making,
    - providing physical infrastructure to support the implementation of EPR in practice (such as drop-off centres).
3. Monitoring and reporting on waste and material flows
4. Developing a waste reduction and purchasing policy for local government.
5. Communicating with and educating their communities to empower them to act as change agents for Government and corporate policy.

1. An integrated decision-making process

By developing an integrated waste management strategy, which involves the community in the decision-making process and addresses the whole waste stream, local governments can better manage waste and resources while improving the cost-effectiveness of the services they provide.

To determine the relative merits and compatibility of various options, the following integrated decision-making framework provides a step-by-step process for best practice waste management and community engagement. This is illustrated in Figure 3 followed by explanation.

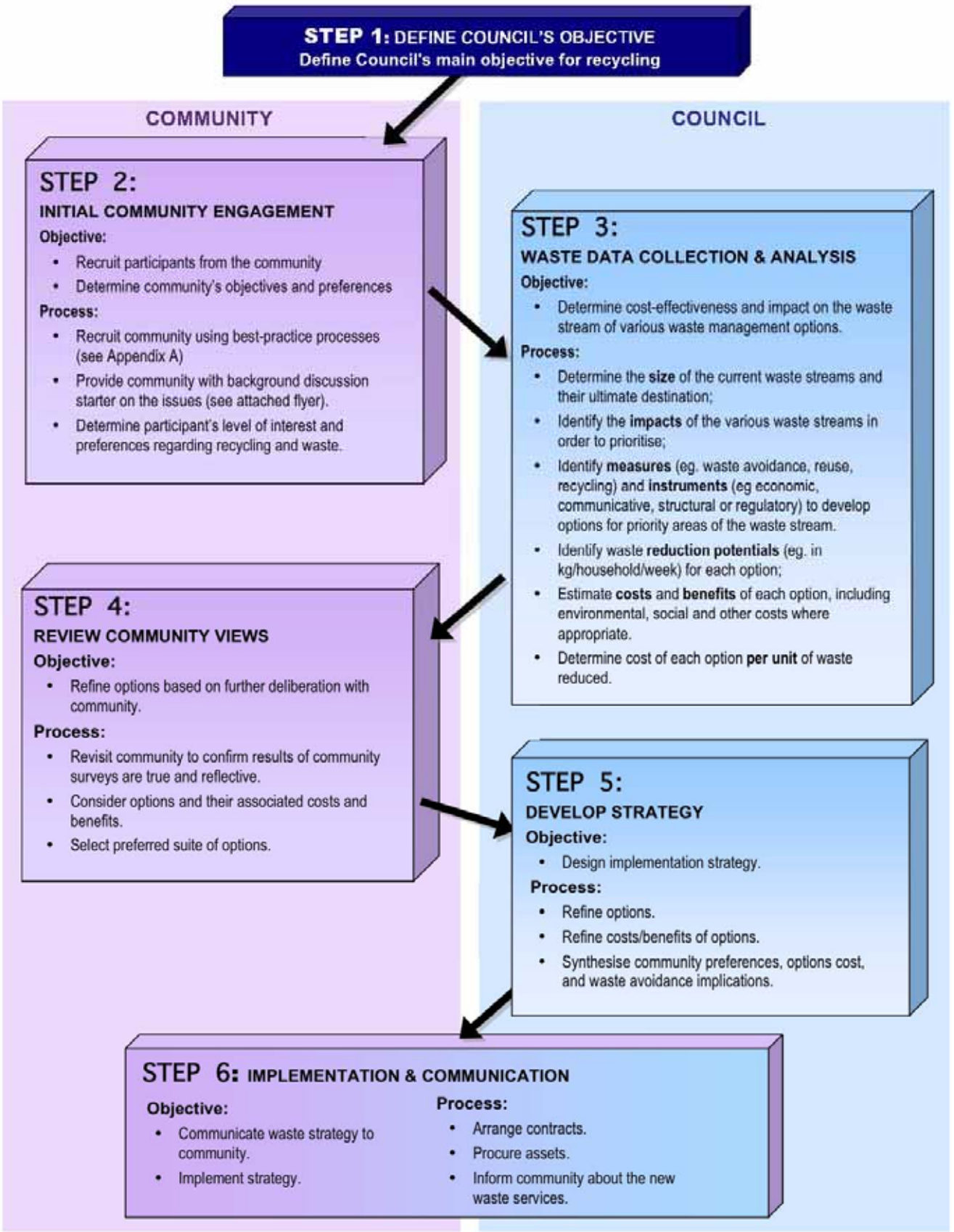


Figure 3: Integrated decision-making framework for local government, incorporating community engagement process.

STEP 1: DEFINE COUNCIL'S OBJECTIVE

It is important to set clear and measurable objectives so progress towards a goal can be measured and assessed. Local and international studies suggest that the overarching environmental benefits associated with more sustainable waste and resource management are reduced resource use and reduced environmental impacts of waste. This means reducing the amount of virgin materials used in consumer products, reducing energy consumption and reducing material disposed to landfill. Council waste planners and managers may have additional objectives such as minimising waste generation in a cost-effective way. The types of materials recovered and the measures used to recover them will each have their own set of costs and benefits. For example, while the transport and labour costs of collecting used paper may be cost neutral because of the current market value of used paper, the cost of collecting PET at kerbside exceeds the market value of used PET, so there is a financial cost. Furthermore, the environmental benefits of avoiding the use of virgin materials for production of PET or paper may differ again. STEP 3 discusses a framework for addressing the 'triple bottom line' costs and benefits of different options and comparing them on an equal basis. This framework allows Council to determine which is the option of least cost for the same environmental benefit.

STEP 2: INITIAL COMMUNITY ENGAGEMENT

Objective:

- Recruit participants from the community
- Determine community's objectives and preferences

Process:

- Recruit community using best practice processes (see Appendix A)
- Provide community with background discussion starter on the issues (see attached flyer).
- Determine participants' level of interest and preferences regarding recycling and waste.

Best practice community engagement techniques are typically deliberative, that is, they involve considered two-way communication, are representative and occur throughout the decision-making process (see Appendix A for some best practice processes).

As waste generation and consumption are embedded in a social context, it is important to address this inextricable link. Traditionally, planning has addressed economic and technical issues and sometimes the environmental, yet often ignored some or all of the less tangible but equally important social barriers and opportunities to tackling the waste problem. In recent years, some of the most successful methods of planning have involved the community, not only to understand their preferences and concerns, but also to engage them in the planning phase. This means moving beyond conventional methods of public meetings, formal submissions and public hearings, to establishing opportunities for representative groups of citizens to deliberate on the issue and work toward solutions in collaboration. Community involvement in preparing plans that affect them is both important and beneficial to all parties.

The earlier in the planning process the community is engaged to help develop ideas and concepts, the more effective the planning process and outcome is likely to be. If individuals

are not only heard, but are engaged in the process, there is likely to be a greater sense of ownership of, support for and legitimacy of the resulting plan[10].

It is not suggested that community consultation in any way replaces the decision-making process of elected representatives. Rather, it can be an integral part of it[11]. Sometimes planners have resisted integrating consultation methods into their planning processes, claiming such reasons as, 'we don't have enough time', 'it costs too much', 'people won't understand the complex issues involved', 'people won't agree', 'it might encourage dissatisfaction' and so on[12].

Involving the community in the planning phase can act as an educational tool for the community. The community in general perceives kerbside recycling to be a highly important initiative towards sustainability. In a Melbourne survey, 97 per cent of those surveyed agreed that kerbside recycling is an essential service[13]. However, a recent study by the NSW Department of Environment and Conservation[14] indicated that there might be little awareness and understanding within the community of the difference between recycling and waste avoidance. This indicated a need for greater community engagement in such issues (see Appendix A for community consultation methods). Engaging the community may challenge and question some widely accepted, long-held 'truths' about consumption and recycling. Questions such as 'why do we really recycle?' and 'what else could we do to achieve the desired environmental outcome?' could be the basis of deliberative discussions.

Importantly, it should be stressed that kerbside recycling, drop off, and any other features of a collection system (frequency, bin types and sizes) are not ends in themselves, they are tools or means of achieving outcomes. It is important to establish early in the process, what these environmental, social and economic objectives actually are.

STEP 3: WASTE DATA COLLECTION AND ANALYSIS

Objective:

Determine cost-effectiveness and impact on the waste stream of various waste management options.

Process:

- Determine the size of the current waste streams and their ultimate destination.
- Identify the impacts of the various waste streams in order to prioritise.
- Identify measures which could reduce waste (i.e. those identified in the waste hierarchy such as waste avoidance, reuse, recycling).
- Identify instruments that could be used to implement measures (i.e economic, communicative, structural or regulatory).
- Develop waste management options for priority areas of the waste stream (an option is a measure coupled with an instrument).
- Identify waste reduction potentials (e.g. in kg/household/week) for each option.
- Estimate costs and benefits of each option, including environmental, social and other costs where appropriate.
- Determine cost of each option per unit of waste reduced.

[10] Carson & Gelber (2001)
[11] Renn (1993)
[12] UK Cabinet Office 2000, cited in Carson & Gelber, 2001
[13] EcoRecycle, 1998
[14] Department of Environment and Conservation (2004b)

Which waste stream?

Consider what is currently happening to the total waste stream. Which parts of the waste stream are being addressed, how are they being managed (e.g. recycling, waste avoidance) and what is the current resource recovery potential (e.g. in terms of kg/household/week)?

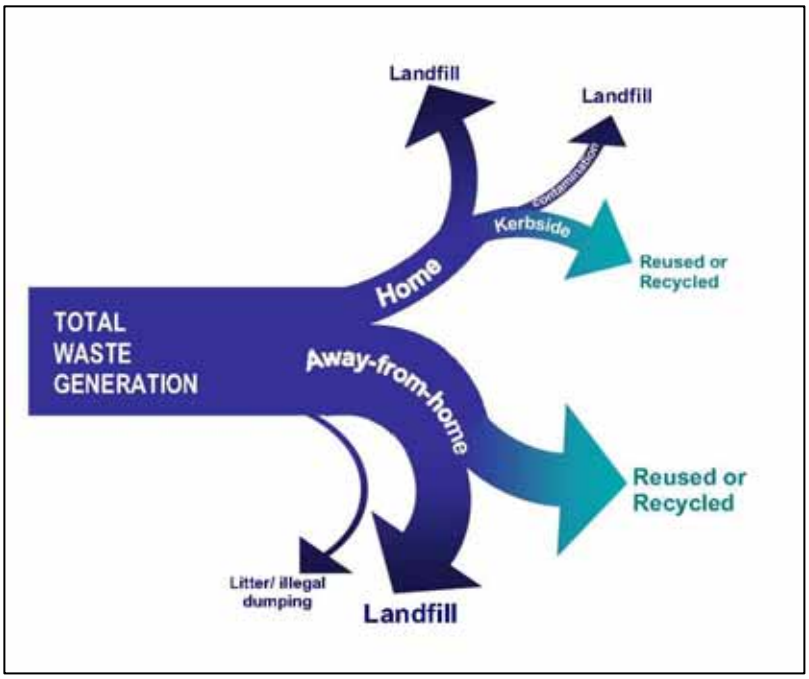


Figure 4: Conceptual diagram of waste flows in NSW

** The widths of the arrows are indicative and are not exactly proportional to real waste volumes/weight owing to lack of relevant data*

In NSW, most local government resources are invested in kerbside collection and recycling of residential paper and packaging waste, as indicated by Figure 4. However, there are other areas of the waste stream with significant resource recovery potential. These include:

In the **residential** sector:

- **organic** waste, such as food scraps
- **green** waste, such as branches and grass clippings
- **large** waste, such as whitegoods and clothes.

The **away-from-home** sector:

- **commercial** waste
- **public place** waste
- **construction** and **demolition** waste

It is important that appropriate data (e.g. kg/household/week) be collected on each waste stream to inform a decision about which areas to focus on. Further, the final destination of these waste streams should be monitored (by mass and/or volume). For example, the domestic stream may be 1120[15] kg/hhld/year, of which 209[16] kg/hhld/year is collected for recycling. However, of this 209 kg/hhld/year, there is little publicly available data on how

[15] based on average Australian waste generation of 400kg/capita/year OECD (2002) and an average household occupancy of 2.8.
[16] based on 26% recovery rate (Hall, 2004)

much gets recycled following sorting at a materials recovery facility and how much gets diverted back to landfill as contamination. Some studies suggest this level of contamination may vary between 6% and 30% depending on the collection system.[17]

For each of these waste streams, it is useful to think about the life-cycle impacts of the waste they contain. This may help to prioritise which waste streams to manage. For example, one waste type, such as Cadmium-Nickel batteries may be smaller than another in terms of kg/hhld/year, however it may contain more toxic materials.

Which waste management measure?

The NSW Waste Avoidance and Resource Recovery Strategy 2003 sets out a priority of actions for waste management (Figure 5). This waste management hierarchy is derived from OECD studies and is based on the most environmentally and cost-effective ways of managing waste.

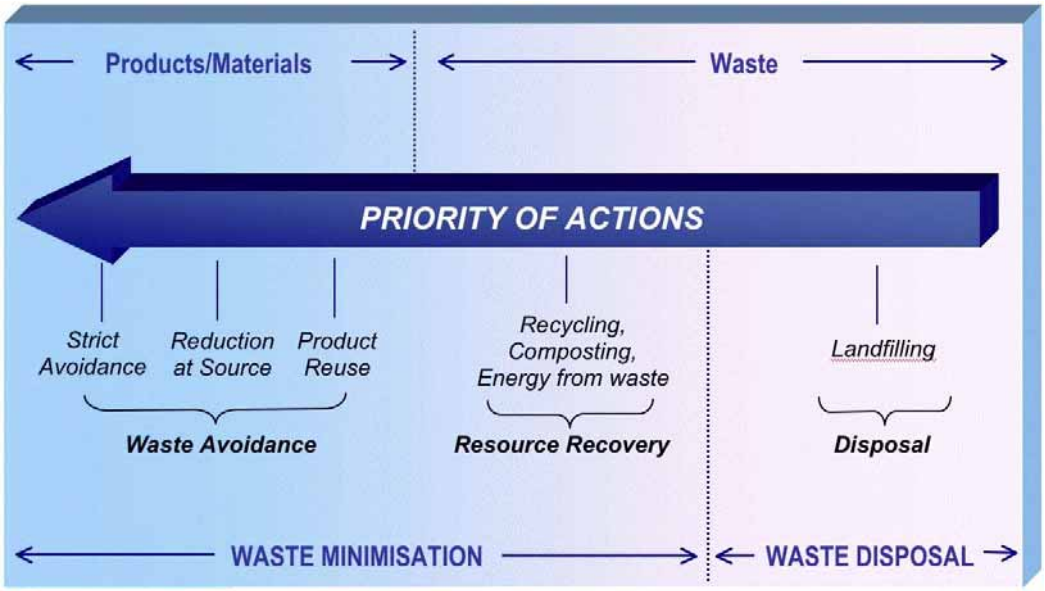


Figure 5: Waste prevention and avoidance in context of the waste hierarchy.

Source: NSW Waste Avoidance and Resource Recovery Strategy, 2003 p30, adapted from Stutz in OECD 2000, p38).

Avoiding the generation of waste in the first place is the most cost-effective, environmentally beneficial and socially responsible way to manage consumer waste (INFORM, 2004). Waste avoidance addresses the core of society's unsustainable consumption and production patterns. As recycling[18] has been the main focus of many councils in NSW over the past decade, there is still significant potential to focus on waste avoidance as a means of better managing waste. While all sectors—government, industry and the community—are responsible for waste avoidance, local government can play a role in engaging the community to contribute to reducing municipal waste generation and increasing informed advocacy to State and Commonwealth Governments. With communities placing a high level of trust in councils to manage environmental issues responsibly,[19] councils are in an excellent position to mobilise the community to change towards more sustainable consumption and disposal habits.

Which instruments and options?

Development of an integrated waste management strategy by local government could include consideration of a combination of structural, economic, regulatory and communicative measures to achieve overall waste minimisation and resource recovery. For example, to

[17] Nolan (2000), ISF (2004).
[18] This has typically been recycling of paper and packaging waste.
[19] EPA (2003)

achieve waste avoidance, **economic** instruments such as pricing mechanisms could be employed, including pay-by-weight or pay-by-volume residential waste disposal. Alternatively, or simultaneously, **communicative** instruments such as community consultation and awareness techniques could be employed to encourage waste avoidance and minimisation at the household level. **Regulatory** instruments could include Development Control Plans to ensure that developments (including multi-unit developments) are designed in such a way that facilitates ongoing good practice in waste management for the life of the development, not just during the construction phase. **Structural** instruments might include providing infrastructure to support product take-back, such as providing kerbside collection for some commodities, or local drop-off-centres or depots for others.

What is the waste reduction potential?

Identify (or estimate where reliable data is not available) waste reduction potentials (e.g. in kg/household/week) for each option. For example, for options such as a deposit refund system on household containers or kerbside collection of whitegoods for disassembly and reuse, how much waste generation can we expect to avoid?

It is not necessarily the case that the option that recovers or avoids the greatest amount of waste will be the preferred option. It depends on the costs (and other benefits) of recovering or avoiding that waste. It may be cost-effective to recover large amounts of one material but not another. This is discussed below.

What are the costs and benefits of each option?

Estimate costs and benefits of each option, including environmental, social and other costs where appropriate. Options will need to address specific areas of the waste stream, such as green waste, food waste, PET, glass, paper, liquid paper board separately, as they will each have different costs and benefits. It will not be sufficient to generalise and determine the costs and benefits of kerbside recycling as a whole; better to look at kerbside collection of specific materials or products and compare these to non-kerbside options for collecting those materials. To use the example in STEP 1 of kerbside collection of paper and PET, recovering a large volume of used paper may have a net cost of X, however, recovering a similarly large volume of PET may have a net cost much more than X. So an option for recovering PET through other means with a lower net cost might be explored, such as the establishment of public collection points and applying pressure on the State / Commonwealth Governments and industry to implement deposit / refund systems to maximise returns through these facilities.

To develop waste management options in a consistent, integrated and cost-effective manner, costs should account for:

- The whole **life cycle** of consumer products that end their life as waste. That is, consideration of environmental and other impacts from virgin material extraction through to final disposal or management of waste products. For example, kerbside recycling has the environmental benefit of reducing waste to landfill, however, product reuse options not only reduce waste to landfill but also reduce energy required manufacture products. Furthermore, waste avoidance options result in reduced waste to landfill, reduced energy input, reduced waste collection costs and reduced virgin material use.

- Assessment of the **environmental, social, technical and economic** impacts and costs of each collection option as applied to each type of commodity.

- **Whole-of-society costs**, not just cost to individual stakeholders. If costs and benefits are analysed for society as a whole, then efficiencies in the whole system may become apparent which are not evident if only costs and benefits to individual stakeholders are analysed. For example, in deposit-refund systems

there may be additional "costs" to individual consumers in terms of the effort involved in returning containers to depots, but the net benefits in terms of a greater proportion of containers returned and the reduction in waste disposal and litter could be seen as benefits to the whole of society.

What is the unit cost?

Determine the unit cost of each option, that is, the total cost per unit of waste avoided. The total cost, where possible, should incorporate available knowledge of avoided costs, such as environmental costs of production of virgin materials[20] as well as landfill costs, as discussed in 'What are the costs and benefits of each option' above.

These options and existing options (such as kerbside recycling of specific materials) can then be assessed and compared on an equal basis to inform the development of an integrated and holistic sustainable waste management plan for local governments.

STEP 4: REVIEW COMMUNITY VIEWS

Objective:

Refine options based on further deliberation with community.

Process:

- Revisit community to confirm results of community surveys accurately reflect views.
- Consider options and their associated costs and benefits.
- Select preferred suite of options.

Following the development of detailed options in STEP 3, these can be presented in a transparent way to the community for further comment and discussion. New and specific community preferences may arise at this stage, given the greater detail provided. For example, the interpretation of earlier community consultation may not have necessarily crystallised into an option that met the original community expectations. The community may prefer particular options or have comments or queries with respect to tweaking specific options, such as the location of drop-off centres, or the frequency of collection of large waste, for example. As the community will be the end-users of any options provided, it is important that arising issues and community preferences are taken into consideration and these may result in the need to refine options accordingly. It is probably useful to continue to stress and clarify the actual objectives of the whole exercise however, in terms of environmental, social and economic outcomes. Kerbside collection of a commodity, for example, should be seen as a means, not an end. Is it the best way to achieve the desired objectives, or is there a better way?

[20] Nolan (2000), ISF (2001).

STEP 5: DEVELOP STRATEGY

Objective:

Design implementation strategy.

Process:

- Refine options.
- Refine costs/benefits of options.
- Synthesise community preferences, options cost and waste avoidance implications.

Options can be refined accordingly, following further community consultation. This may involve refining specific options as described in STEP 3, or refining choice of preferred options.

STEP 6: IMPLEMENTATION AND COMMUNICATION

Objective:

- Communicate waste strategy to community.
- Implement strategy.

Process:

- Arrange contracts.
- Procure assets.
- Inform community about the new waste services.

Once options have been refined, an implementation strategy can be planned and carried out. This means developing a timeline, a communication strategy for the community and other stakeholders about the new system, procuring assets and arranging contracts as required.

Contractual issues

Risks to council owing to the volatility of the recycling market and the constant state of flux of the recycling industry, can be minimised through careful structuring of recycling contracts by:

- developing outcome and performance-based contracts, rather than adversarial and restrictive contracts.
- involving contractors and other stakeholders in contract development and sharing the responsibilities and risks.
- developing short-term contracts (such as 3–5years).

The box below is an example of benefits from the recent SSROC regional recycling contract.

The framework and objectives of the recent SSROC regional recycling contract

This contract has addressed the following key issues for both the service provider and the councils, which participated in the procurement process.

1. Collaborative approach
    - The terms of the contract encourage the parties to work together in sharing the responsibilities that the service provides.
    - The contract also addresses the issue of risk. It apportions the type of risk to that party best able to manage it.
    - Communication through contract management meetings and reporting protocols are designed to maintain close contact between the contracting parties
2. Outcomes focussed

    The contract focuses the parties on clear objectives which need to be achieved. These are based on a set of service principles, to:
    - Maximise the quality and quantity of recovered recyclable product to end market reuse
    - Maximise the range and type of recyclable product able to be recovered to end market reuse
    - Maximise the financial return to each party to the contract
    - Deliver environmental and social benefits to all stakeholders
3. Performance based

    A set of tools are being used to monitor performance and check if the outcomes set are being achieved. These tool include:
    - An education programme to help users of the recycling service to put the right product in the right bin
    - The employment of an external consultant, or Industry and Performance Adviser, to monitor the whole supply chain from kerbside collection to end market disposal and advise on improvement to the system of recovery
    - Introduction of product audits to check type/quantity of material entering the system
    - Environmental plans to confirm that statutory obligations are being observed

The resultant benefits to the participating councils, of Rockdale, Marrickville, and Waverley are likely to be:

- In excess of $2 million savings in operational costs per annum for the participating councils
- A widening of the type of product recovered in the recycling stream
- An increasing proportion of total waste diverted from landfill
- Systemic improvements in OHS and EMS planning and implementation
- Environmental improvement in reduced transport movements
- The ability to develop more consistent delivery and quality of services across council areas

It is important that the indicators upon which the performance of contracts are being assessed are carefully thought through. For example, if the yield from kerbside recycling is a performance criterion, the actual indicator of this needs to be explicit and appropriate; the amount of waste households put out for collection is not necessarily an accurate proxy for the yield. A more appropriate indicator would be the amount of that waste that is actually beneficially reused. Further, an indicator of reduced virgin material extraction owing to waste avoidance might be appropriate. However, the latter may be more difficult to calculate.

Southern Sydney Regional Organisation of Councils (SSROC) has recently developed individual but linked contracts for three member councils. Some advantages in developing contracts at the regional level through collective work and agreement include a significantly higher quality of thinking, framework and resultant tender/contract documentation.[21] Involving too many councils in a regional contract may risk generating a performance contract with the lowest common denominator.

[21] David Somerville, pers comm. 6/5/04

Drafting of tender briefs is crucially important. The onus should be placed on tendering organisations to clearly demonstrate the economic, social and environmental benefits of their proposals. One mistake which is commonly made is to assume that a contract should collect as wide a variety of materials as possible, and to use this as the environmental “measure” of a contract. In fact, a tender bid could conceivably argue that it is economically, socially and environmentally preferable for a particular type of commodity to be disposed of in the waste stream or dealt with in some other way (eg. Drop off, onsite management) rather than being collected separately. This may be because of lack of viable markets, degree of likely contamination (both of that commodity and of other commodities) the preference for encouraging the community to deal with some materials ‘on-site’ (eg. Garden and compostable waste), or excessive cost of separation.

When tenders are submitted they need to be very closely scrutinised and the triple bottom line test again applied to each commodity. Are the economic, social and environmental outcomes sufficiently achieved for each commodity? It is entirely possible that none of the bids fully meet the council’s required triple bottom line expectations for all materials. This can be addressed by further negotiations with shortlisted contractors, or even in some cases, by council rethinking its objectives and the nature of the service it can reasonably and realistically offer, perhaps involving the community again to ensure ownership.

2. Promoting Extended Producer Responsibility

Local government has generally expressed support for the implementation of Extended Producer Responsibility principles to reduce waste generation, particularly in relation to post-NPC initiatives (Meinhardt, 2004). There are several actions local government could take to support the implementation of EPR principles at the state level and the national level. These actions include increased levels of informed advocacy, strengthening local government involvement in State and Commonwealth decision-making and providing physical infrastructure (subject to agreed conditions) to support the implementation of EPR in practice.

Increased informed advocacy

Continue informed advocacy to State and Commonwealth governments about implementing effective EPR strategies, including greater shared physical and financial responsibility and the use of clear and measurable targets for recovery of used products including beverage containers and other used packaging.

Local government involvement in State and Commonwealth decision-making

To ensure local government interests are addressed in State and Commonwealth decisions which affect them directly or indirectly, local governments should firmly maintain the position that the local government sector, along with non-government organisations that represent consumer, environment and community interests, be represented in State and Commonwealth decision-making on waste and EPR strategies, in *addition* to citizen involvement through an appropriate process which informs the State and Commonwealth decision-making.

Infrastructure

Provide infrastructure (beyond kerbside recycling) to support Extended Producer Responsibility, such as drop-off centres (depots) currently used throughout South Australia, Orange in NSW, and as proposed by the (then) Western Sydney Waste Board and numerous other ‘tip shops’ throughout Australia. The provision of infrastructure may be dependent in part on the outcome of evaluating various options for their environmental, social and economic costs and benefits and negotiation with other stakeholders. Provision of infrastructure (which may include kerbside collection, drop-off depots etc) should also ideally be negotiated in an EPR context, that is, with council being seen as a service provider for dealing with the producers’ materials, and appropriate levels of remuneration for that service provision.

3. Monitoring and reporting on waste and material flows

To prioritise which areas of the waste stream to focus on, and to track progress in managing waste, it is essential to collect appropriate and consistent waste and material data over time. Councils are in a good position to monitor, collect and synthesise such data, however, they may lack the resources to do so. Councils could therefore proactively define data management requirements and request funding and resources from State and Commonwealth Governments to develop and manage a best practice data collection process.

A database could be set up to consistently collect reliable, transparent and appropriate data on trends in the generation of waste and the disposal, recovery, recycling and reuse of materials and products for each waste sector. The need for a consistent waste database to overcome the current lack of reliable, comprehensive information on the quantity and composition of waste streams is supported by OECD recommendations for Australia (OECD, 2000a). The Australian Waste Database (AWD) may be an appropriate tool to facilitate this data collection. The AWD was established in the 1990s to facilitate monitoring of State and Commonwealth waste minimisation policies. Whilst the last datasets were collected in 1998, the existing framework and models are now being managed by CSIRO with the intention of updating the database. However the data is managed, it is important that a consistent framework for such data collection be employed, including methodology, assumptions and timeframes, so that the data can be aggregated and or compared across LGAs and/or jurisdictions. Currently, the Jurisdictional Recycling Groups set up under the National Packaging Covenant collect some data on waste and recycling, however, some of this information has not been collected in a consistent and transparent way.

4. Developing a waste reduction and purchasing policy

The shift toward waste avoidance and recovering resources rather than disposing to landfill means we need to think differently about the ways we buy, use and dispose of consumer products. Industry needs to rethink the way consumer products are made. The community can best contribute to waste avoidance and resource recovery through environmentally responsible consumer purchasing practices, which is covered in the following section. There is a significant opportunity for local government to lead by example and to develop a waste reduction and purchasing policy for councils. This policy could take a similar form to the NSW Government Waste Recovery and Purchasing Policy (WRAPP). This would complement the existing Local Government Buy Recycled Alliance managed by LGSA, which provides councils with information and a resource kit to encourage the purchasing of recycled materials and products with recycled content[22].

Ten key procurement strategies local government can employ (INFORM, 2004):

- Reduce paper use
- Purchase durable goods
- Lease and rent when appropriate
- Specify product and packaging take-back
- Buy goods in bulk or concentrated form
- Manage surplus effectively
- Establish food and green waste reduction programs
- Purchase recyclable items and items with recycled content
- Procure remanufactured goods and use refurbished services
- Purchase goods containing fewer toxic constituents.

[22] DEC (2004b)

5. An Informed Community

As discussed in STEP 2 of Section 1: An integrated decision-making process, the community should be engaged in issues of waste, consumption and recycling. The following flyer can be used by NSW councils to send to the community as a discussion starter on consumption and waste generation issues, or, as a stand-alone document. An informed community can make better decisions about issues that affect them and the long term sustainability of our society.

Beyond Recycling
what you can do...

Although Australians are concerned about the environment and committed to recycling, we are still creating more waste per person than almost any other country. The good news is almost all of the waste we generate can be avoided in the first place, reused or recycled. There are numerous steps the community, government and industry can take to help solve the problem.

Why is there a waste problem?

As a society, we produce and use goods much faster than the environment and our society can manage them at the end of their life. The problem extends beyond the cost and impact of landfilling used goods, it goes right up the production chain to the impact of the extraction and processing of non-renewable materials to make consumer goods. A significant amount of energy, water and transport is also required to produce these goods. Each person in NSW alone generates more than a tonne of waste every year! That waste goes straight to landfill unless we choose to re-use, recycle or compost it - or better still, not create the waste in the first place

Nearly 5 billion used beverage containers are disposed of to landfill or litter each year in Australia.

What is the situation in Australia?

Australia has the second highest rate of waste generation per person in the world. This is despite the community's significant efforts and interest in household recycling. While communities in many parts of Europe share a similar high level of concern for the environment and interest in recycling, their superior reuse and recycling rates and low levels of waste generation are possible because their governments and industry are heavily committed to minimising waste.

In Australia, the focus of our efforts has historically been on the kerbside collection of household recycling for paper and some plastic, glass and metal containers. There is a growing awareness that these systems are **NOT** the most cost-effective way to manage our entire waste problem because:

What did we send to landfill and what did we recycle in 2000...?

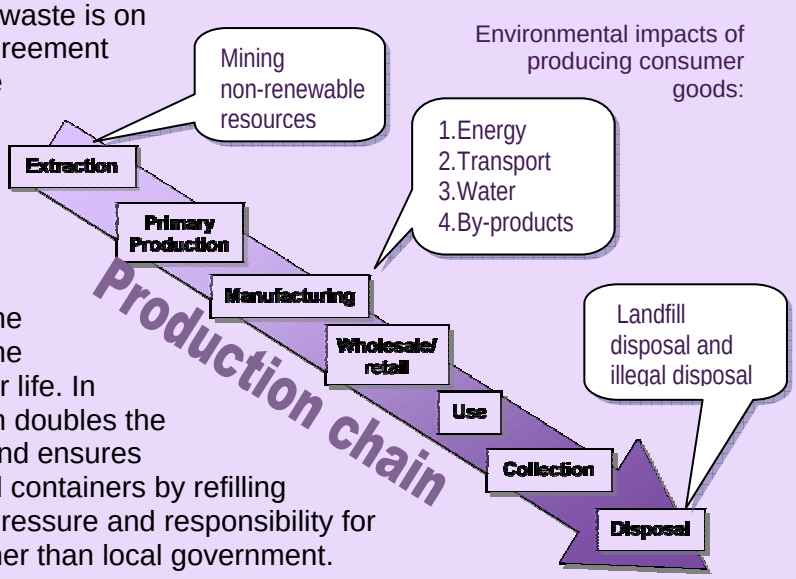
- **Kerbside recycling is expensive.** You the household ratepayer and your council together bear the huge cost of providing the service. There is a huge gap between what it costs to run kerbside collection services and the returns from selling the collected materials. In fact, you pay about $50/year to council as part of the annual waste charge towards the net cost of providing kerbside services.
- **The entire waste stream is not addressed.** There are many materials that are not currently collected at kerbside, that go straight to landfill. This includes almost all packaging and container materials consumed and disposed of away from home, food and some garden waste.
- **Contamination.** A significant proportion of what is collected for recycling at the kerbside is of poor quality or non-recyclable and sent to landfill.

A clever person can solve a problem, but a wise person avoids one.

INFORM www.informinc.org

Who is responsible for managing waste and resources?

Currently almost all the burden of managing waste is on councils and ratepayers. There is general agreement worldwide that it is time for producers to take greater responsibility for the products they make. In many European countries like Sweden and Germany, Government and Industry have developed policies to ensure producers are more responsible for the waste their products create further down the production chain. For example, throughout the European Union, automakers must pay for the reuse and recycling of cars at the end of their life. In South Australia, a deposit and refund system doubles the recovery rate of used beverage containers and ensures producers take responsibility for the returned containers by refilling or recycling of them. This system shifts the pressure and responsibility for this packaging waste towards producers rather than local government.



These waste policies exist within a framework of **Extended Producer Responsibility (EPR)** - "an environmental policy approach in which a producer's physical and/or financial responsibility for a product is extended to the post-consumer stage of a product's life cycle"*. EPR initiatives have been commonplace in European waste policy for decades. Australia is only now catching up to international best-practice developments. EPR initiatives should ideally be implemented by the Commonwealth Government, but could also be developed and certainly advocated by individual State governments.

What can you do beyond kerbside recycling?

As a citizen, a council ratepayer and a consumer of goods, you can play a significant role in waste minimisation and supporting the implementation of Extended Producer Responsibility in NSW and Australia. The choice of products you buy at the shops has a huge impact on the amount and type waste generated. It also sends a message to industry that you prefer goods which help reduce waste. Many of the tips in the Community Checklist will save you money as well as reduce the environmental impact of waste.

Community Checklist

- 3 Think before you buy – do you really need the product?
- 3 Purchase products with less packaging and use your own refillable packaging whenever you can.
- 3 Choose packaging that is more easily reused or recycled.
- 3 Purchasing longer lasting products.
- 3 Try services rather than goods (eg. renting, borrowing, or sharing rather than buying your own)
- 3 Compost or worm-farm your food scraps and garden waste.
- 3 Reuse or repair products rather than disposing and purchasing new ones.
- 3 Participate in local, state or commonwealth decision-making through advocacy and voting.
- 3 Support your local council's efforts to get producers to take more responsibility (financial and environmental) for the products they put on the market.

GLOSSARY

The following terms are described for the purpose of this paper.

Away-from-home	For the purpose of this report, away-from-home refers to products consumed and disposed of (or dealt with otherwise) in the public place sector.
Brand Owners	'a person who is the owner or licensee in Australia of a trade mark under which a product is sold or otherwise distributed in Australia, whether the trade mark is registered or not; in the case of a product which has been imported, the first person to sell that product in Australia; in respect of in-store packaging, the supplier of the packaging to the store' (NEPM, 1999)
Commercial and industrial wastes	(C &I) Solid and inert wastes generated by businesses and industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospitals and government offices), excluding building and demolition waste and municipal waste.
Composting	The process of the aerobic conversion of organic materials by micro-organisms into soil conditioners, compost or humus. By definition, it is a process which must be carried out under controlled conditions yielding cured products.
Construction and demolition waste	(C & D) Solid and inert waste materials, arising from the demolition, erection, construction, refurbishment and alteration of buildings and the construction, repair and alteration of infrastructure including buildings.
Consumer packaging	All products made of any material, or combination of materials, for the containment, protection, marketing and handling of retail consumer products. It includes bulk packaging that contains multiple units of a product intended for consumer use (NPC, 1999, c l2).
Contamination	That proportion of the contents of the household recycling bin which is not ultimately recycled due to poor quality – including glass breakages and/or inseparable material types. Contamination can occur at both at the household and further at the material recovery facility during separation.
Domestic	household solid and inert wastes placed out for kerbside collection.
Drop-off facility	A public facility for delivery and storage of recyclables or other materials that can be segregated from the waste stream.
Extended Producer Responsibility (EPR)	The producer's responsibility for a product (including physical or financial responsibility) is extended to the post-consumer stage of the product's life-cycle (*Waste Avoidance and Resource Recovery Act*, 2001, Section 15)

Food waste	Waste food materials including vegetable, fruit, cereal, carcasses, parts of carcasses, blood, bone, fish waste and fatty and oily sludges.
Garden waste	Raw vegetation including grass, leaves, mulch, plants, branches, twigs, tree boles and stumps, and tree loppings.
Green waste	Waste comprising vegetative organic materials including garden waste, food waste and wood waste.
Kerbside recycling	A formalised kerbside collection system for recyclables from households, where the generator segregates wastes according to material type and places them in containers on the kerbside for separate collection. The system is usually administered by local government authorities (Resource NSW, 2003).
Life Cycle Assessment (LCA)	An approach that studies the entire environmental effects of a product or material from production to disposal. With respect to waste management, LCA considers all aspects of resource use, waste generation, storage, transport, treatment and disposal.
Light-weighting	Reducing the mass of packaging required per volume of contents.
Materials recovery facility (MRF)	Waste Depot at which recyclable materials are recovered for their re-use as materials.
Mobile garbage bins	("wheelie bins") Plastic bins designed with wheels and an attached lid to be wheeled out by the resident for collection at the kerbside.
Municipal waste	Solid and inert wastes arising from the three waste sub-streams: (1) *domestic waste* - household solid and inert wastes placed out for kerbside collection; (2) *other domestic wastes* - residential solid and inert wastes arising from domestic clean-up and garden waste; and (3) *other council waste* - council generated solid and inert wastes arising from street sweepings, litter bins, parks and garden clean-ups, tree loppings and council engineering work.
Organic waste	One or more of the following types of waste: garden, untreated wood, fibrous, vegetables, fruits, cereals, biosolids, manures, fatty foods, meat, fish and fatty sludges.
Producer	The party with the greatest control over the selection of materials and the design of the product. It can be the manufacturer, brand-owner, importer, or filler (OECD, 2001).
Product chain	The production process from raw material extraction to waste management of a product. This will involve importers, fillers, distributors, brand name holders, manufacturers, retailers, consumers, collectors and waste managers.

Product stewardship	An ethic of shared responsibility for the lifecycle of the product through to and including its ultimate disposal. (NPC, 1999, p3).
Recovery rate	The proportion of end-of-life product recovered for recycling and reuse.
Recyclates	Used products that are available to be recycled.
Shared Responsibility	Shared responsibility for the life cycle of products including the environmental impact of the product from the extraction of virgin materials, to manufacturing, to consumption and through to and including ultimate disposal and post-disposal consequences (Resource NSW, 2003, Section 15).
Stakeholder	For the purpose of this review, stakeholder refers to any party in the production chain, including all spheres of government (Commonwealth, State and Local), the consumer product industry, retailers and consumers.
Transfer station:	A waste facility used to transfer waste from collection vehicles to a bulk haul vehicle in order to achieve long-distance transportation efficiency.
Waste Act 2001	*Waste Avoidance And Resource Recovery Act* 2001
Waste hierarchy	*According to the NSW Waste Strategy 2003,* the Waste hierarchy in descending order is: • ***Avoidance*** - including strict avoidance, reduction at source and product re-use. • ***Resource Recovery*** - including composting, recycling and energy recovery. • ***Disposal*** - including landfilling.
Waste Strategy 2003	NSW Waste Avoidance and Resource Recovery Strategy (Resource NSW, 2003)

RESOURCES

Websites:

WRAPP- NSW Government Waste Recovery and Purchasing Policy: http://www.wrapp.nsw.gov.au
Department of Environment and Heritage – Waste Management: http://www.deh.gov.au/industry/waste/index.html
NSW Department of Environment and Conservation - EPR: http://www.dec.nsw.gov.au/waste/epr/eprps04.htm
EcoRecycle Victoria: www.ecorecycle.vic.gov.au
Local Government Association of NSW and Shires Association of NSW (LGSA): www.lgsa.org.au
Australian Local Government Association (ALGA) – waste: www.alga.asn.au/policy/environment/waste.php
Independent Review of Container Deposit Legislation: http://www.isf.uts.edu.au/CDL_Report/index.html
ISF Review of the National Packaging Covenant: www.isf.uts.edu.au/whatwedo/proj_materials_waste.html
Citizen Participation in Decision-making: www.hydra.org.au/activedemocracy
Organisation for Economic Cooperation and Development (OECD) - waste: http://www.oecd.org
INFORM – Community Waste Prevention Toolkit: www.informinc.org
WorldWatch Institute – Consumption: http://www.worldwatch.org/features/consumption/

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